

## Abstract

Process for producing proton-conducting polymer membranes, improved polymer membranes and their use in fuel cells

The present invention relates to a proton-conducting polymer membrane comprising polyazoles which is obtainable by a process comprising the steps

- A) preparation of a mixture comprising polyphosphoric acid,  
at least one polyazole and/or one or more compounds suitable for forming polyazoles under the action of heat in step B),
- B) heating of the mixture obtainable according to step A) to temperatures up to 400°C under inert gas,
- C) application of a layer to a support using the mixture from step A) and/or B),
- D) treatment of the membrane formed in step C) until it is self-supporting, wherein the treatment of the membrane is carried out using a hydrolysis liquid comprising oxo acids of phosphorus and/or oxo acids of sulfur.